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EXAMINER

FELTON, MICHAEL J

ART UNIT

PAPER NUMBER

1791

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/675,937

Applicant(s)

CROOKS ET AL.

Examiner

MICHAEL J. FELTON

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 22-25 and 29-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21, 26-28 and 38-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/26/2008 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-21, 26-28, and 38-43 have been considered but are moot in view of the new ground(s) of rejection.

3. Applicant's arguments filed 4/4/2008 have been fully considered but they are not persuasive.

4. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., what a semi-permeable membrane should be composed of) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In addition, the applicant appears to be arguing a use of the word semi-permeable that is not supported by the specification. Paragraph 0012 states, "The semi-permeable barrier may be constructed of any

material that allows permeation of mainstream smoke, but retains the absorbent material in a defined portion of the compartment. Exemplary materials for the semi-permeable barrier include highly porous paper, cellulose acetate tow...". The examiner believes that the barrier disclosed by Litchfield meets the definition of semi-permeable provided in the applicant's specification and it serves to separate the materials in the cavity, but allows smoke through.

5. The applicant argues that because Litchfield teaches that conventional adsorbents are less desirable and would likely detract from the tobacco smoke pleasure, the reference teaches away from the instant application. Litchfield does not indicate that the present embodiment nor that of Keith II et al., or Noznick would not work, and therefore it does not teach away from the present invention or the combination with Keith II et al. and Noznick. MPEP 2123 (II) states, "Disclose examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments." *In re Susi* 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

6. The applicant also argues that Keith II et al. teaches a modified activated charcoal that has less of an impact on taste than conventional activated charcoal. The applicant describes a further reason for combining inventions of Litchfield and Keith II et al., as both have determined materials that have less of a deleterious effect on the smoke taste while removing unwanted smoke components.

7. The applicant discusses a new reference (see page 5, 6 of Remarks), however, the reference is not material to the rejection made in the prior office action as many prior

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art documents may exist that teach for or away from any particular technique or apparatus.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-21, 26-28, and 38-43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The new claim limitations of "fibrous tow of uniform construction in cross-section" and "having a uniform particulate removal efficiency in cross-section" and "the barrier providing a continuous, uninterrupted, and uniform barrier between region A and region B" are not supported in the specification. In particular, the barrier and tow disclosed are not indicated as being uniform in cross section or having uniform particulate removal efficiency in cross section.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. The terms "weak" and "strong" in claim 5 are relative terms which renders the claim indefinite. The terms "weak" and "strong" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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14. Claims 1-17, 19, 20, 21, 26-28, and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keith II (US 3,251,365) in view of Schreus et al. (US 2,815,760), Schneider (US 5,979,459) and Badgett et al. (US 3,603,319).

15. Regarding claims 1, 6, 7, 16, 17, 19, 20, 26-28, and 38-42, Keith II, discloses that the typical cellulose acetate filters used in cigarette filters do not remove all the harmful constituents of tobacco smoke (col. 2, 15-17). One solution disclosed is to use "well-known absorbents such as activated charcoal, alumina, natural and synthetic clays and silica gel" (col. 2, 23-30), and that these materials can be segregated from the cellulose acetate filter (col. 2, 70-72; col. 3, 1-5). Particle sizes are also disclosed as being between 8 and 50 mesh. Keith II also discloses a structure using two conventional filter plugs and forming a cavity between them, and the filter plugs can be made from plasticized cellulose acetate (col. 4, 7-39). Keith II does not disclose more than one chamber (or one chamber split into two chambers) or the use of ion exchange materials.

16. Schreus et al. teach a multi cavity cigarette holder that contains 3 chambers, 2 of which contain ion exchange resins and one containing activated carbon. Each separated by cotton tow (cotton wool) that would inherently provide a uniform barrier between the regions (for instance regions A and B), (see example 2 and figure 7, elements 15-18). Schreus et al. also indicate that the filter segments could also be used directly within a cigarette (col. 4, 1-2).

17. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the filter segments disclosed by Keith II and Schreus et al. to create a cigarette smoke filter capable of more effectively removing unwanted

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constituents of cigarette smoke. The motivation is supplied by Keith II, in the disclosure that conventions filter plugs alone do not provide sufficient removal, and that cavities can be used between such plugs. Although Schreus et al. disclose a filter for a cigarette holder, it would have been obvious to one of ordinary skill that filter segments from holders and cigarettes are capable of being used in one another and there is significant crossover in the art. In addition, Schreus et al. show a way to incorporate activated carbon, which is taught by Keith II as being used in a cavity between two filter plugs, but go on to indicate the compounds that can be removed with other materials leading one of ordinary skill to see the advantage of multiple cavity components separated from one another (Schreus et al., col. 1- col. 4).

18. Keith II and Schreus et al. do not indicate the particulate removal efficiency of the various filter segments or their uniformity. However, Schneider et al. and Badgett et al. both disclose using segments of different density (i.e. denier and particle removal efficiency). Schneider et al. disclose a

- a. first coaxial segment (which does not have a uniform cross-section) followed by a
- b. middle segment with high retention [(with a resistance to draw between 30 to 100 mm WC and a single denier of 1.5 to 5 dpf; col. 2, 30-42; col. 4, 4-11; and appears to have a uniform cross-section (figure 1, element 12)] and would inherently have a uniform particulate removal efficiency in cross-section), and a

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c. mouth end segment with low retention (10 to 15 mm WC, col. 3, line 67—col. 4, line 3) and a uniform cross section (figure 1, element 11) and would inherently have a uniform particulate removal efficiency in c-section).

19. Badgett et al. disclose a first filter segment made from loosely compacted 5 dpf/30,000 denier cellulose acetate tow, adding a granular material, and then capping the material with an 8 dpf/48,000 denier tow (col. 8, 15-65). It would have been obvious that barring other treatment steps, the tow as described by Badgett et al. would have a uniform cross-section and uniform particle removal efficiency in cross-section. It would have been obvious to one of ordinary skill in the art at the time of invention to use cellulose acetate filter segments with different particle removal efficiency. For instance, it would have been obvious to one of ordinary skill in the art at the time of invention to use a filter with high particulate removal as a prefilter before treating the smoke with relatively expensive materials such as activated carbon and ion exchange resins while using a mouth end filter with low resistance to draw (i.e. low particulate removal) to limit the resistance to draw by the smoker (i.e. make the cigarette usable) as well as to prevent granular material getting into the users mouth. The latter use is supported by the disclosure of Badgett et al. which calls the use of the second filter segment as "capping".

20. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the filter cavity materials of Schreus et al. in the cavity filter disclose by Keith II et al. to remove more unwanted smoke constituents (for instance those disclosed by Schreus et al.). It would also have been obvious to use cellulose

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acetate filter segments with uniform cross-section, and uniform particle removal efficiency in cross-section (the typically cellulose acetate filter) as well as using a first segment of higher particle removal efficiency and a second, mouth-end, cellulose acetate segment of low particle removal efficiency to prevent cavity materials from entering the mouth as well as provide sufficient draw characteristics.

21. In reference to claims 2 and 3, it would have been obvious to reverse the order of the absorbent and the ion exchange resins, since it has been held that mere reversal of the essential working parts of a device involves only routines skill in the art. *In re Einstein*, 8 USPQ 167.

22. In reference to claim 4, Schreus et al. disclose that the ion exchange material has a grain size of 1.2 mm or 0.9 mm. It would have been obvious to one of ordinary skill that the material is granular (example 2).

23. Regarding claim 5, Schreus et al. disclose basic organic anion exchange resins (col. 3, 45-66). It would have been obvious that such bases would have either been strong or weak.

24. In reference to claims 8-15, it would have been obvious to optimize the length of each filter component to produce a filter suitable for attachment to a cigarette, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In addition, Eichel discloses a cigarette filter with a length of 38 mm, and that filters for cigarettes are typically 1:3 to 1:2 in relation to the length of the tobacco rod (col. 4, 61-70).

25. Regarding claim 21, Schreus et al. disclose using cotton wool to separate materials in a cavity. However, it would have been obvious to use other types of tow, especially cellulose acetate which is common in the art and in the other references. Furthermore, Schreus et al. indicates prior use of "finely porous filter materials or cotton wool and the like". It would have been obvious that cellulose acetate and other tow materials could be used in place of cotton wool (i.e. cotton balls).

26. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keith II (US 3,251,365), Schreus et al. (US 2,815,760), Schneider (US 5,979,459) and Badgett et al. (US 3,603,319) as applied to claim 1 above, and further in view of the *Kirk-Othmer Encyclopedia of Chemical Technology*, John Wiley & Sons, Inc., 2001, vol. 14, page 12. The references used in the rejection of claim 1 do not expressly disclose that the ion exchange resin is in granular form. However, as described in the *Kirk-Othmer Encyclopedia of Chemical Technology*, ion-exchange resins are typically made in granular form. "With few exceptions, resins are supplied as small, round beads..."

27. It would have been obvious to one of ordinary skill in the art at the time of invention to use ion exchange resins in their granular form because they are typically produced in granular form.

28. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keith II (US 3,251,365), Schreus et al. (US 2,815,760), Schneider (US 5,979,459) and Badgett et al. (US 3,603,319) as applied to claim 1 above, and further in view of Frund (US

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5,714,126). The references used in claim 1 do not disclose the activity of the activated carbon. However, Frund discloses using activated carbon to remove harmful gasses, with an activity of at least 95 Carbon Tetrachloride Activity (col. 2, line 6).

29. It would have been obvious to one of ordinary skill in the art at the time of invention to have used carbon with sufficient activity, as disclosed by Frund, to achieve removal of harmful gasses in the cigarette smoke.

30. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keith II (US 3,251,365), Schreus et al. (US 2,815,760), Schneider (US 5,979,459) and Badgett et al. (US 3,603,319) as applied to claim 1, in further view of Jupe et al. (US 2002/0166563).

31. Jupe et al. disclose that it is typical to ventilation plug-space-plug filters (such as that of Keith II et al.) along the bed of adsorbent contained in the space in order to achieve sufficient spacing of the ventilation holes from the buccal end of the filter so that the lips of the smoker would not block the holes (paragraph 0006). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to ventilate the filter with a plurality of ventilation holes in the cavity (i.e. space) area.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL J. FELTON whose telephone number is

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(571)272-4805. The examiner can normally be reached on Monday to Friday, 7:30 AM to 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip C. Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. F./
Examiner, Art Unit 1791

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791

